Docket No. 01-0663
ICC Staff Exhibit 2.0

# DIRECT TESTIMONY

OF

MATTHEW L. ULMER

FINANCE DEPARTMENT

FINANCIAL ANALYSIS DIVISION

ILLINOIS COMMERCE COMMISSION

LAKE WILDWOOD UTILITIES, CORP.

DOCKET NO. 01-0663

JANUARY 25, 2002

**Q. Please state your name.**

A. My name is Matthew L. Ulmer.

**Q. By whom are you currently employed and what is your business address?**

A. I am currently employed by the Illinois Commerce Commission. My business address is 527 East Capitol Avenue, Springfield, Illinois 62701.

**Q. What is your current position with the Illinois Commerce Commission?**

A. I am presently employed as a Financial Analyst in the Finance Department of the Financial Analysis Division.

**Q. Please describe your qualifications and background.**

A. In August of 1998, I received a Bachelor of Science degree in Individual Studies from Western Illinois University in Macomb, IL. In December of 2000, I received a Master of Business Administration degree concentrated in Finance and International Business from Western Illinois University in Macomb, IL. I was employed as a Revenue Auditor Trainee with the Illinois Department of Revenue from January of 2001 until September of 2001. I have been employed by the Illinois Commerce Commission since September of 2001.

**Q. What is the purpose of your testimony in this proceeding?**

A. The purpose of my testimony and accompanying schedules is to present my analysis of the cost of capital and recommend an overall rate of return for Lake Wildwood Utilities Corporation (Lake Wildwood or the Company).

**Q. Please summarize your findings and recommendations.**

A. Lake Wildwood's cost of equity ranges from 9.50% to 12.30% with a recommended midpoint estimate of 10.90%. The recommended overall cost of capital is 9.82%, as shown on ICC Staff Exhibit 2.0, Schedule 2.10.

**Q. What is the overall cost of capital for a public utility?**

A. The overall cost of capital is the sum of the component costs of the capital structure (i.e., debt, preferred stock, and common equity) after each is weighted by its proportion to total capital. It represents the rate of return the utility needs to earn on its assets to satisfy contractual obligations to, or the market requirements of, its investors.

**Q. Why is it important to determine a reasonable cost of capital for a public utility?**

A. A primary objective of regulation is to minimize the cost of reliable service to ratepayers while allowing public utilities to earn a fair and reasonable rate of return. When a public utility is authorized a rate of return equal to a reasonable cost of capital, the interests of ratepayers and investors are properly balanced. If the authorized rate of return is greater than a reasonable cost of capital, ratepayers are burdened with excessive rates. Conversely, if the authorized rate of return is less than a reasonable cost of capital, the utility may be unable to raise capital at a reasonable cost and ultimately may be unable to raise sufficient capital to meet demands for service. Therefore, the interests of ratepayers and investors are best served when a utility's allowed rate of return is set equal to a reasonable overall cost of capital.

**Q. How does a utility's capital structure affect its cost of capital?**

A. Financial theory suggests that capital structure will affect the value of a firm and, therefore, its cost of capital, to the extent it affects the expected level of cash flows that are diverted from debt and stockholders (e.g., taxes, legal fees, and trustee fees). By using debt as a source of capital, a firm reduces its income taxes, which, in turn, reduces its cost of capital. However, as reliance on debt as a source of capital increases, so does the probability of bankruptcy. As bankruptcy becomes more probable, expected payments to attorneys, trustees, accountants, and other parties increase while the expected value of the income tax shield debt financing provides declines. Consequently, beyond a certain point, an increasing dependence on debt as a source of funds will increase the overall cost of capital.

An optimal capital structure would minimize the company's cost of capital while maintaining its financial integrity. Unfortunately, determining whether a capital structure is optimal is problematic because (1) the cost of capital is a continuous function of the capital structure, rendering its precise measurement along each segment of the range of potential capital structures impossible; (2) the optimal capital structure is a function of operating risk, which is dynamic; and (3) the marginal and relative costs of the different types of capital vary with dynamic market conditions. As a result, one should determine whether the capital structure is consistent with the financial strength necessary to access the capital markets and if so, whether the cost of that financial strength is reasonable.

**Q. What capital structure did the Company propose for setting rates?**

A. The Company proposed using UI's December 31, 2000 capital structure, which contained 50.02% long-term debt and 49.98% common equity, as shown on ICC Staff Exhibit 2.0, Schedule 2.01.

**Q. What capital structure do you recommend?**

A. Lake Wildwood is a wholly owned subsidiary of Utilities, Inc. (UI), which provides Lake Wildwood with capital. Thus, the financial risk of Lake Wildwood is essentially the financial risk of UI, and adopting UI's capital structure is appropriate.

**Q. What is UI's cost of long-term debt?**

A. ICC Staff Exhibit 2.0, Schedule 2.02 shows the embedded cost of long-term debt to be 8.74% as of December 31, 2000.

**Q. What methodologies did you use to determine a reasonable cost of common equity for the Company?**

A. I used a discounted cash flow (DCF) model and a risk premium model to determine the Company's cost of equity. My risk premium analysis specifically used the capital asset pricing model (CAPM).

**Q. How did you apply these models to the Company?**

A. Since Lake Wildwood does not have common stock that is market-traded, DCF and risk premium analyses cannot be performed directly on Lake Wildwood. Therefore, I performed DCF and risk premium analyses on both a sample of six public utilities and a sample of five water companies comparable in risk to Lake Wildwood.

**Q. How did you select a sample of public utilities comparable in risk to Lake Wildwood?**

A. A firm's market-required return on common equity is a function of its operating and financial risks. Standard & Poor's business profile scores reflect the operating risk

of a utility.[1] Standard & Poor's focuses on a utility's service area economy, competitive position, operations, management, water supply, and asset concentration. Business profile is evaluated on a scale of one to ten. A rating of one denotes below average business risk. A rating of ten denotes above average business risk.[2] I imputed a business profile score for Lake Wildwood, since it does not have one. I began with twelve market-traded water companies listed on Standard & Poor's *Ratings Direct*. Of these twelve market-traded water utilities, nine are assigned a business profile score of 3; two are assigned a business profile score of 2; and one is assigned a business profile score of 4. The average business profile score of the twelve market-traded water utilities is 2.9. From that average business profile score, I concluded that a business profile score of 3 would be a reasonable estimate for Lake Wildwood.

To measure financial risk, I selected the four financial ratios for which Standard & Poor's has established benchmark values: (1) cash flow to total debt; (2) funds flow interest coverage; (3) pretax interest coverage; and (4) total debt to total capital. Since these ratios measure financial risk and Lake Wildwood's financial risk is that if UI, I used UI data from the period 1998-2000. These ratio values are summarized in ICC Staff Exhibit 2.0, Schedule 2.04. A comparison of UI's financial ratios to the corresponding benchmarks indicates that the ratios for UI are consistent with a credit rating of 'A'.

[1] Standard & Poor's, *Utility Rating Service: Utility Financial Statistics,* Twelve Months Ended September 30, 1996, p. 1.
[2] Standard & Poor's, *Utilities Rating Service: Global Sector Review,* November 1998, p. 9.

To form the water sample, I selected all non-water utility corporations listed in Standard & Poor's *Utility Compustat II* database that matched Lake Wildwood's implied credit rating level of 'A' and business profile score of 3. I further eliminated any company that lacked either *Zacks Investment Research* (Zacks) or *Institutional Brokers Estimate System* (IBES) growth rates. Of the remaining seven companies, I eliminated Northwest Natural Gas due to its involvement in a pending merger. ICC Staff Exhibit 2.0, Schedule 2.03 presents the six public utilities selected for the sample.

**Q. How did you select a sample of water utilities comparable in risk to UI?**

A. For my sample of water utilities, I included all water companies for which I had sufficient data to conduct DCF and risk premium analyses that are not involved in a pending merger. ICC Staff Exhibit 2.0, Schedule 2.03 presents the five water utilities that met those criteria.

**Q. Please describe DCF analysis.**

A. DCF analysis is a market-based approach for establishing a security's value. This value reflects all relevant risks the market associates with the security. DCF analysis establishes a cost of common equity capital directly from investors' rate of return requirements.

The DCF model asserts that the value of a security equals the present value of all its future cash flows. Specifically, the market value of a firm's common stock equals

the aggregate value of its expected stream of future dividends, discounted at the investor-required rate of return. As a present value model, DCF recognizes that money has time value, that is, a dollar received today is worth more than a dollar received at a future date. Accordingly, an underlying assumption is that the market price of a security reflects the immediate reinvestment of each future cash flow, i.e., dividend, at the firm's discount rate.

**Q. Please describe the DCF model with which you measured Lake Wildwood's cost of common equity.**

A. The companies in the comparable sample pay dividends quarterly; therefore, I applied a constant-growth DCF model that measures the annual required rate of return on common equity as follows:

$$k_e = \frac{\sum_{q=1}^{4} D_{0,q}\left(1+g\right)\left(1+k_e\right)^{1-\left[x+0.25\left(q-1\right)\right]}}{P_0} + g\,.$$

where $P$ ≡ The current stock price;

$D_{0,q}$ ≡ the last dividend paid at the end of quarter $q$, where $q$ = 1 to 4;

$k$ ≡ The cost of common equity;

$x$ ≡ the elapsed time between the stock observation and first dividend payment dates, in years; and

$g$ ≡ The expected dividend growth rate.

**Q. Please discuss the appropriate growth rate factor to use in your DCF model.**

A. The DCF model requires a growth rate that reflects the expectations of investors. Although a stock's current market price reflects aggregate investor growth expectations, no method exists to directly measure the market consensus expected growth rate for that particular stock. Therefore, I have employed growth rates forecasted by securities analysts to estimate the investor-expected growth rate.

**Q. Please describe the published growth rate forecasts used for the firms in your samples.**

A. I examined analysts' projected earnings growth rates in the December 20, 2001 edition of IBES and data provided by Zacks on January 11, 2002. IBES and Zacks summarize the earnings growth expectations of financial analysts employed by the research departments of investment brokerage firms. Both provide forward-looking, expectational estimates of earnings growth. The growth rate estimates from IBES and Zacks for each firm in my samples are presented on ICC Staff Exhibit 2.0, Schedule 2.05. Excepting Keyspan, for those companies with growth rate estimates from both sources, I averaged the IBES and Zacks growth rates.

**Q. Why did you not average Keyspan's IBES and Zacks growth rate estimates?**

A. The mean IBES growth rate estimate of 18.14% for Keyspan is an average of seven analyst growth forecasts including one forecast of 80%. That 80% growth forecast, which is clearly unsustainable and likely a typographical error, adds over ten

percentage points to the average, rendering that average unreliable and inaccurate.[3]

**Q. Please discuss the stock price used in your DCF analysis.**

A. I used each firm's closing market price on January 11, 2002. These stock prices are presented in ICC Staff Exhibit 2.0, Schedule 2.06. A current stock price reflects all relevant information that is available to the market. Therefore, it represents investors' assessment of the current value of that firm's common stock. An observed change in the market price of a firm's common stock does not necessarily indicate the required rate of return on common equity has changed. Rather the price change may simply reflect investors' re-evaluation of the expected dividend growth rate. Thus, when using a DCF model to estimate the market-required rate of return on common equity for a firm, the analyst must simultaneously estimate that firm's investor-expected dividend yield and the corresponding investor-expected growth rate. Using a historical stock price along with current growth expectations or combining an updated stock price with past growth expectations will likely produce an inaccurate estimate of the market-required rate of return on common equity.

**Q. How did you estimate the next four expected quarterly dividends for each firm in your comparable sample?**

[3] Subsequent to performing my analysis, the January IBES growth rate report was received which showed that the 80% growth rate had been removed.

A. Most utilities declare and pay the same dividend per share for four consecutive quarters before the dividend is increased. Therefore, I assumed the dividend would increase during the same quarter it was increased the previous year. Excepting Keyspan, which has already announced 2002 dividend payments[4], if the utility did not increase its dividend over the previous four quarters, I assumed the dividend would be increased during the next quarter. The average growth rate was applied to the current dividend to estimate the expected dividend. ICC Staff Exhibit 2.0, Schedule 2.06 presents the current quarterly dividends. ICC Staff Exhibit 2.0, Schedule 2.07 presents the expected quarterly dividends.

**Q. Based on your DCF analysis, what is the estimated required rate of return on common equity for the utility and water samples?**

A. My DCF analysis indicates the required rate of return on common equity for the utility sample is 12.37% and 8.84% for the water sample as shown on ICC Staff Exhibit 2.0, Schedule 2.08.[5]

**Q. Please describe the risk premium model.**

A. The risk premium model is based on the theory that the market-required rate of return for a given security equals the risk-free rate of return plus a risk premium associated with that security. A risk premium represents the additional return

[4] Keyspan homepage, www.keyspanenergy.com.
[5] The DCF analysis estimates are derived from growth rates from ICC Staff Exhibit 2.0, Schedule 2.05; stock price and dividend payment dates from ICC Staff Exhibit 2.0, Schedule 2.06; and expected quarterly dividends from ICC Staff Exhibit 2.0, Schedule 2.07.

investors expect in exchange for assuming the risk inherent in an investment. Mathematically, a risk premium equals the difference between the expected rate of return on a risk factor and the risk-free rate. If the risk of a security is measured relative to a portfolio, then multiplying that relative measure of risk and the portfolio's risk premium produces a security-specific risk premium for that risk factor.

The risk premium methodology is consistent with the theory that investors are risk-averse. That is, investors require higher returns to accept greater exposure to risk. Thus, if investors had an opportunity to purchase one of two securities with equal expected returns, they would purchase the security with less risk. Conversely, if investors had an opportunity to purchase one of two securities with equal risk, they would purchase the security with the higher expected return.

The Capital Asset Pricing Model (CAPM) is a one-factor risk premium model that measures the relationship between risk and return. The CAPM is mathematically expressed as follows:

$$R_j = R_f + b_j \times (R_m - R_f)$$

where $R_j \equiv$ the required rate of return for security $j$;
$R_f \equiv$ the risk-free rate;
$R_m \equiv$ the expected rate of return for the market portfolio; and
$b_j \equiv$ the measure of market risk for security $j$.

In the CAPM, the risk factor is market risk. To implement the CAPM, one must estimate the risk-free rate of return, the expected rate of return on the market portfolio, and a security or portfolio-specific measure of market risk.

**Q. How did you estimate the risk-free rate of return?**

A. I examined the suitability of the yields on three-month U.S. Treasury bills and thirty-year U.S. Treasury bonds as estimates of the risk-free rate of return.

**Q. Why did you examine the yields on U.S. Treasury bills and bonds as measures of the risk-free rate?**

A. The proxy for the nominal risk-free rate should contain no risk premium and reflect similar inflation and real risk-free rate expectations to the security being analyzed through the risk premium methodology.[6] The yields of fixed income securities include premiums for default and interest rate risk. Default risk pertains to the possibility of default on principal or interest payments. Securities of the United States Treasury are virtually free of default risk by virtue of the federal government's fiscal and monetary authority. Interest rate risk pertains to the effect of interest rate fluctuations on the value of securities.

Since common equity theoretically has an infinite life, its market-required rate of return reflects the inflation and real risk-free rates anticipated to prevail over the long run. U.S. Treasury bonds, the longest term treasury securities, were issued with terms to maturity of thirty years;[7] U.S. Treasury notes are issued with terms to maturity ranging from two to ten years; U.S. Treasury bills are issued with terms to

[6]Real risk-free rate and inflation expectations comprise the non-risk related portion of a security's rate of return.

maturity ranging from ninety-one days to six months. Therefore, U.S. Treasury bond yields are more likely to incorporate the inflation and real risk-free rate expectations that drive, in part, the prices of common stocks than either U.S. Treasury notes or Treasury bills.

However, due to relatively long terms to maturity, U.S. Treasury bond yields also contain an interest rate risk premium that diminishes their usefulness as measures of the risk-free rate. U.S. Treasury bill yields contain a smaller premium for interest rate risk. Thus, in terms of interest rate risk, U.S. Treasury bill yields more accurately measure the risk-free rate.

**Q. Given that the inflation and real risk-free rate expectations that are reflected in the yields on U.S. Treasury bonds and the prices of common stocks are similar, does it necessarily follow that the inflation and real risk-free rate expectations that are reflected in the yields on U.S. Treasury bills and the prices of common stocks are dissimilar?**

A. No. To the contrary, short and long-term inflation and real risk-free rate expectations, including those that are reflected in the yields on U.S. Treasury bills, U.S. Treasury bonds, and the prices of common stocks, should equal over time. Any other assumption implausibly implies that the real risk-free rate and inflation are expected to systematically and continuously rise or fall.

[7] The U.S. Treasury announced the suspension of issuance of 30-year U.S. T-bonds on October 31, 2001.

Although expectations for short and long-term real risk-free rates and inflation should equal over time, in finite time periods, short and long-term expectations may differ. Short-term interest rates tend to be more volatile than long-term interest rates.[8] Consequently, over time U.S. Treasury bill yields are less biased (i.e., more accurate) but less reliable (i.e., more volatile) estimators of the long-term risk-free rate than U.S. Treasury bond yields. In comparison, U.S. Treasury bond yields are more biased (i.e., less accurate) but more reliable (i.e., less volatile) estimators of the long-term risk-free rate. Therefore, an estimator of the long-term nominal risk-free rate should not be chosen mechanistically. Rather, the similarity in current short and long-term nominal risk-free rates should be evaluated. If those risk-free rates are similar, then U.S. Treasury bill yields should be used to measure the long-term nominal risk-free rate. If not, some other proxy or combination of proxies should be used.

**Q. What are the current yields on three-month U.S. Treasury bills and thirty-year U.S. Treasury bonds?**

A. Three-month U.S. Treasury bills are currently yielding 1.59%. Thirty-year U.S. Treasury bonds are currently yielding 5.44%. Both estimates are derived from quotes for January 11, 2002.[9] ICC Staff Exhibit 2.0, Schedule 2.09 presents the published quotes and effective yields.

[8] Fabozzi and Pollack, ed., ~~The Handbook of Fixed Income Securities~~, Fourth Edition, Irwin, p. 789.
[9] The Federal Reserve Board, *Federal Reserve Statistical Release: Selected Interest Rates, H.15 Daily Update,* ~~http://www.federalreserve.gov/releases//H15/update/~~, January 14, 2002.

**Q. Of the U.S. Treasury bill and bond yields, which is currently a better proxy for the long-term risk-free rate?**

A. In terms of the gross domestic product (GDP) price index, DRI-WEFA forecasts the inflation rate will average 2.3% annually during the 2002-2020 period.[10] In terms of the consumer price index (CPI), the *Survey of Professional Forecasters* (Survey) forecasts the inflation rate will average 2.6% during the next ten years.[11] In terms of real GDP growth, DRI-WEFA forecasts the real risk-free rate will average 3.4% during the 2002-2020 period. The Survey forecasts real GDP growth will average 3.3% during the next ten years.[12] Those forecasts imply a long-term, nominal risk-free rate between 5.7% and 6.0%.[13] Therefore, DRI-WEFA and Survey forecasts of inflation and real GDP growth expectations suggest that the U.S. Treasury bond yield more closely approximates the long-term risk-free rate, currently. It should be noted, however, that the U.S. Treasury bond yield is an upwardly biased estimator of the long-term risk-free rate due to the inclusion of an interest rate risk premium associated with its relatively long term to maturity.

[10] DRI-WEFA Group, *U.S. Long-Term Economic Outlook*, vol. 1, Fourth Quarter 2001.
[11] *Survey of Professional Forecasters,* Federal Reserve Bank of Philadelphia, www.phil.frb.org/files/spf/survq301.html, November 20, 2001. The *Survey* aggregates the forecasts of approximately thirty forecasters.
[12] *Survey of Professional Forecasters,* Federal Reserve Bank of Philadelphia, www.phil.frb.org/files/spf/survq301.html, February 20, 2001.
[13] Nominal interest rates are calculated as follows:

$$r = (1 + R) \times (1 + i) - 1.$$

where: $r$ ≡ nominal interest rate;
$R$ ≡ real interest rate; and
$i$ ≡ inflation rate.

**Q. Please explain why the real risk-free rate and the GDP growth rate should be similar.**

A. Risk-free securities provide a rate of return sufficient to compensate investors for the time value of money, which is a function of production opportunities, time preferences for consumption, and inflation.[14] The real risk-free rate excludes the premium for inflation. The real GDP growth rate measures output of goods and services without reflecting inflation expectations and, as such, also reflects both production and consumers' consumption preferences. Therefore, both the real GDP growth rate and the real risk-free rate of return should be similar since both are a function of production opportunities and consumption preferences without the effects of either a risk premium or an inflation premium.

**Q. How was the expected rate of return on the market portfolio estimated?**

A. The expected rate of return on the market was estimated by conducting a DCF analysis on the firms comprising the S&P 500 Index (S&P 500) as of September 28, 2001. That analysis used dividend information reported in the October 2001 edition of *S&P Security Owner's Stock Guide*[15] and closing market prices reported in Salomon Smith Barney, *Performance and Weights of the S&P 500: Third Quarter 2001*. Growth rate estimates were obtained from the September 2001 edition of *IBES Monthly Summary Data* and September 26, 2001 Zacks reports. Firms not paying a dividend as of September 28, 2001, or for which neither IBES

[14] Brigham and Houston, ~~Fundamentals of Financial Management~~, 8th edition.
[15] Dividend information for Aetna, Inc. was reported on www.aetna.com.

nor Zacks growth rates were available, were eliminated from the analysis. The resulting company-specific estimates of the expected rate of return on common equity were then weighted using market value data from Salomon Smith Barney, *Performance and Weights of the S&P 500: Third Quarter 2001*. The estimated weighted average expected rate of return for the remaining 359 firms, composing 81.86% of the market capitalization of the S&P 500, equals 15.30%.

**Q. Has any financial market uncertainty resulting from the September 11, 2001 terrorist attacks affected the accuracy of your estimate of the required rate of return on the market?**

A. No. The required rate of return on the market equaled 15.31% as of June 28, 2001. The small difference between the June 28 and September 28, 2001 estimates suggests little, if any, post September 11, 2001 related impact on my estimate of the market return.

**Q. What did you use as a measure of systematic risk?**

A. I used the beta coefficient (beta) in my risk premium analysis. Beta is widely recognized by the financial community as a measure of systematic risk. Beta measures the volatility of a company's stock price relative to the volatility of the market as a whole. For example, a beta of 0.85 for a particular security indicates that the security's return will fluctuate 15% less than the return on the market portfolio. The beta for a security is estimated using the following ordinary least-squares technique:

$$R_{j,t} = a_j + b_j \times R_{m,t} + e_{j,t}$$

where:

$R_{j,t}$ ≡ the return on security $j$ in period $t$;

$R_{m,t}$ ≡ the return on the market portfolio in period $t$;

$a_j$ ≡ the intercept term for security $j$;

$b_j$ ≡ beta, the measure of market risk for security $j$; and

$e_{j,t}$ ≡ the residual term in period $t$ for security $j$.

**Q. How did you estimate the beta coefficient for your risk premium analysis?**

A. I estimated the beta coefficient by regressing the percentage change in the firm's stock price against the percentage change in the New York Stock Exchange Composite Index. Sixty monthly observations of stock price data are used in the regression equation to develop a raw beta estimate. The raw beta estimate is then adjusted through the following equation:

$$b_{Adjusted} = 0.33743 + 0.66257 b_{Raw}$$

This adjustment is based on the theory that the beta for a particular firm will regress towards the market mean value of 1.0 over time and represents an attempt to estimate a forward-looking beta.

**Q. What are the beta estimates for both the utility and water samples?**

A. The utility sample's beta, estimated over the sixty-months ending December 2001, equals 0.67 after adjustment. The water sample's beta, estimated over the sixty-months ending December 2001, equals 0.47 after adjustment.

**Q. What is the risk premium estimate of the required rate of return on common equity for the utility and water samples?**

A. My risk premium model indicates that the required rate of return on common equity from the utility sample equals 12.05%. The risk premium model indicates that the required rate of return on common equity from the water sample equals 10.08%. The computation of those estimates appears on ICC Staff Exhibit 2.0, Schedule 2.09.

**Q. Do you recommend a liquidity premium be added to the cost of common equity range you estimated for Lake Wildwood?**

A. Yes. A liquidity premium arises from the costs associated with selling an asset at the desired time at a predictable price. In my analysis, two samples consisting of market-traded utilities were used to estimate Lake Wildwood's cost of common equity. Samples consisting of market-traded companies will not reflect substantial liquidity premiums because those premiums arise from the lack of a market for the securities of a company. Market-based assessments of the cost of having illiquid securities cannot be performed because the absence of a market creates the additional premium.

**Q. How did you estimate Lake Wildwood's liquidity premium?**

A. As noted previously, Lake Wildwood's financial strength is most consistent with that of a firm with securities rated 'A' by Standard & Poor's. Therfore, I compared Lake Wildwood's 8.42% Collateral Trust Note, issued June 21, 2000 to the yield on A-rated, publicly traded utility debt for that day. As of June 21, 2000, publicly issued A-rated utility debt yielded 8.38%.[16] To estimate the liquidity premium, I computed the spread between A-rated utility debt and Lake Wildwood's cost of debt and rounded to the nearest five basis points. The result is a liquidity premium of 5 basis points.

**Q. Based on your analysis, what is your estimate of the cost of common equity of Lake Wildwood in this proceeding?**

A. A thorough cost of common equity analysis requires both the proper application of financial models and appropriate use of the analyst's informed judgment. A cost of common equity recommendation based solely on judgment is inappropriate. Nevertheless, because cost of common equity measurement techniques necessarily employ proxies for investor expectations, judgment remains necessary to evaluate the results of such analyses. I have considered the DCF and risk premium estimates for both the utility and water samples, the estimate of the market return, and the use of the thirty-year U.S. Treasury bond yield as the proxy for the risk-free rate. I formed the range by: 1) averaging the DCF and risk premium-derived estimates of the required rate of return on common equity for the utility

sample, rounding both estimates to the nearest tenth of a percent; and 2) averaging the DCF and risk premium-derived estimates of the required rate of return on common equity for the water sample, rounding both estimates to the nearest tenth of a percent. The estimates range from 9.45% to 12.25%, with a recommended average of 10.85%. After computing my cost of common equity averages for the samples, I added the 5 basis point liquidity premium to the 10.85% recommended average of my cost of common equity. Additionally, along with DCF and risk premium analyses, I have considered the observable 7.09% rate of return the market currently requires on less risky A-rated long-term debt.[17] Based upon my entire analysis, a reasonable cost of common equity for Lake Wildwood Utilities Corporation equals 10.90%.

**Q. Explain your decision to weight the two samples equally when determining the overall cost of equity for Lake Wildwood Utilities Corporation.**

A. Using Standard & Poor's *Utility Compustat II* database, I examined and compared Lake Wildwood's four three-year average ratios to those same three-year average ratios for both the utility and water samples. ICC Staff Exhibit 2.0, Schedule 2.04 presents this information. There was no material difference between Lake Wildwood's ratios and those of the two samples. Therefore, I concluded that both samples were equally comparable to UI.

[16] Moody's Investor Service, www.moodys.com, *Moody's Long-Term Corporate Bond Yield Averages.*
[17] The Value Line Investment Survey, *Selection & Opinion,* Part 2, January 18, 2002, p. 3831.

**Q. Given the similarity of Lake Wildwood and the water sample financial ratios, why did you not rely exclusively on the water sample to form your cost of equity recommendation?**

A. In my judgment, the cost of common equity estimates for the water sample are relatively low. Similarly, in comparison to recent Staff analyses, the cost of common equity estimates for the utility sample are relatively high. Therefore, I concluded that an average of the cost of equity estimates for the two samples would be more appropriate.

**Q. What is the overall cost of capital for Lake Wildwood Utilities Corporation in this proceeding?**

A. As shown on ICC Staff Exhibit 2.0, Schedule 2.10, the overall cost of capital for Lake Wildwood is 9.82%. The point estimate is based on a cost of common equity of 10.90%.

**Q. Does this conclude your testimony?**

A. Yes, it does.

Docket No. 01-0663
Staff Exhibit 2.0
Schedule 2.01

LAKE WILDWOOD UTILITIES CORPORATION

UTILITIES, INC. AND SUBSIDIARIES

Capital Structure

**Company Proposal**

December 31, 2000

| Component | Amount | Ratio |
|---|---|---|
| Long-Term Debt | $ 70,000,000 | 50.02% |
| Common Equity | 69,945,301 | 49.98% |
| Total | $139,945,301 | 100.00% |

Sources: Company Response to Staff data request FD 1.01

LAKE WILDWOOD UTILITIES CORPORATION

**Utilities, Inc. and Subsidiaries**
Embedded Cost of Long-Term Debt
December 31, 2000

| | Bank Loans Coupon Rate | Date Issued | Maturity Date | Face Amount Outstanding | Unamortized Debt Expense | Carrying Value | Coupon Interest Expense | Amortization of Debt Expense | Total Expense |
|---|---|---|---|---|---|---|---|---|---|
| | (A) | (B) | (C) | (D) | (G) | (H) | (I) | (K) | (L) |
| 9.16% | Collateral Trust Note | 1991 | 2006 | $5,000,000 | $45,048 | $ 4,954,952 | $ 458,000 | 10,284 | $468,284 |
| 9.01% | Collateral Trust Note | 11/30/92 | 11/30/2007 | 9,000,000 | 135,875 | $ 8,864,126 | $ 810,900 | 24,214 | $835,114 |
| 7.87% | Collateral Trust Note | 06/01/95 | 06/01/05 | 15,000,000 | 58,471 | $ 14,941,529 | $ 1,180,500 | 15,955 | $1,196,455 |
| 8.42% | Collateral Trust Note | 06/21/00 | 06/21/15 | 41,000,000 | 891,200 | $ 40,108,800 | $ 3,452,200 | 69,004 | $3,521,204 |
| | TOTAL ENDING BALANCE | | | | 1,130,594 | 68,869,406 | 5,901,600 | 119,457 | 6,021,057 |

**Embedded cost of long-term debt = 8.74%**

Sources: Company Response to Staff data request FD 1.01

LAKE WILDWOOD UTILITIES CORPORATION

Utility and Water Companies Utilized

| Utility Sample | Water Sample |
|---|---|
| AGL Resources | American States Water |
| Energy East Corporation | Artesian Resources |
| Keyspan Corporation | California Water Services |
| NSTAR | Philadelphia Suburban Corporation |
| Piedmont Natural Gas Company | SJW Corporation |
| Questar Corporation | |

Docket No. 01-0663
Staff Exhibit 2.0
Schedule 2.04

LAKE WILDWOOD UTILITIES CORPORATION

Benchmark Ratios

**Lake Wildwood**

| Ratio | Value | |
|---|---|---|
| | 2000 | 3-yr Avg. 1998-2000 |
| Funds Flow from Operations to Total Debt | 20.6% | 22.7% |
| Funds Flow from Operations Interest Coverage | 3.3 | 3.7 |
| Pretax Interest Coverage | 3.3 | 3.3 |
| Total Debt to Total Capital | 52.6% | 51.0% |

**Utility Sample**

| Ratio | Value | |
|---|---|---|
| | 2000 | 3-yr Avg. 1998-2000 |
| Funds Flow from Operations to Total Debt | 23.0% | 24.0% |
| Funds Flow from Operations Interest Coverage | 4.26 | 4.31 |
| Pretax Interest Coverage | 3.55 | 3.28 |
| Total Debt to Total Capital | 57.9% | 51.4% |

**Water Sample**

| Ratio | Value | |
|---|---|---|
| | 2000 | 3-yr Avg. 1998-2000 |
| Funds Flow from Operations to Total Debt | 17.6% | 20.4% |
| Funds Flow from Operations Interest Coverage | 3.4 | 3.7 |
| Pretax Interest Coverage | 3.0 | 3.3 |
| Total Debt to Total Capital | 52.8% | 51.5% |

Source: Response to Staff data request FD 1.03
*Standard & Poor's Utility Compustat*.

LAKE WILDWOOD UTILITIES CORPORATION

Growth Rate Estimates

Utility Sample

| Company | Zacks | IBES | Average |
|---|---|---|---|
| AGL Resources | 7.28% | 7.00% | 7.14% |
| Energy East Corporation | 5.92 | 7.19 | 6.56 |
| Keyspan Corporation | 8.17 | N/A[1] | 8.17 |
| NSTAR | 6.33 | 6.67 | 6.50 |
| Piedmont Natural Gas Company | 7.80 | 4.67 | 6.24 |
| Questar Corporation | 10.20 | 9.75 | 9.98 |

Water Sample

| Company | Zacks | IBES | Average |
|---|---|---|---|
| American States Water | N/A[2] | 4.00% | 4.00% |
| Artesian Resources | 6.00 | 8.00 | 7.00 |
| California Water Service | N/A | 5.00 | 5.00 |
| Philadelphia Suburban | 3.00 | 8.17 | 5.59 |
| SJW Corporation | N/A | 4.00 | 4.00 |

[1] N/A = Rejected due to one analyst's unrealistic and unsustainable growth rate included in the IBES average rate.
[2] N/A = Unavailable

Sources: *Zacks Investment Research*, January 11, 2002
*Institutional Brokers Estimate System*, December 20, 2001.

LAKE WILDWOOD UTILITIES CORPORATION

Quarterly Dividends and Stock Prices
as of January 11, 2002

Utility Sample

| Company | Current Dividend $D_{0,1}$ | $D_{0,2}$ | $D_{0,3}$ | $D_{0,4}$ | Next Dividend Payment Date | Stock Price |
|---|---|---|---|---|---|---|
| AGL Resources Inc. | $0.270 | $0.270 | $0.270 | $0.270 | 3/1/2002 | $21.8000 |
| Energy East Corporation | 0.230 | 0.230 | 0.230 | 0.230 | 2/15/2002 | 19.1000 |
| Keyspan Corporation | 0.445 | 0.445 | 0.445 | 0.445 | 5/1/2002 | 33.6400 |
| NSTAR | 0.515 | 0.515 | 0.515 | 0.530 | 5/1/2002 | 44.0500 |
| Piedmont Natural Gas Company | 0.365 | 0.385 | 0.385 | 0.385 | 4/15/2002 | 34.1500 |
| Questar Corporation | 0.175 | 0.175 | 0.175 | 0.180 | 3/18/2002 | 25.0200 |

Sources: *Standard and Poor's Stock Guide, December 2001*
CNNmoney
AGL Resources Press Release, October 30, 2001
Energy East Press Release, January 11, 2002
Keyspan homepage, www.keyspanenergy.com
NSTAR Press Release, December 20, 2001
Piedmont Natural Gas homepage, www.piedmontng.com
Questar Press Release, October 25, 2001.

Water Sample

| Company | Current Dividend $D_{0,1}$ | $D_{0,2}$ | $D_{0,3}$ | $D_{0,4}$ | Next Dividend Payment Date | Stock Price |
|---|---|---|---|---|---|---|
| American States Water | $0.325 | $0.325 | $0.325 | $0.325 | 3/1/2002 | $36.8500 |
| Artesian Resources | 0.275 | 0.275 | 0.280 | 0.280 | 2/21/2002 | 30.0000 |
| California Water Services | 0.279 | 0.279 | 0.279 | 0.279 | 2/152002 | 24.7500 |
| Philadelphia Suburban | 0.124 | 0.124 | 0.124 | 0.133 | 3/1/2002 | 22.5500 |
| SJW Corporation | 0.615 | 0.653 | 0.653 | 0.653 | 3/1/2002 | 85.6500 |

Sources: *Standard and Poor's Stock Guide, December 2001*
CNNmoney
American States Water Press Release, October 30, 2001
Artesian Resources Press Release, October 31, 2001
California Water Services Press Release, October 24, 2001
Philadelphia Suburban Press Release, November 2, 2001
SJW Press Release, October 25, 2001.

LAKE WILDWOOD UTILITIES CORPORATION

Expected Quarterly Dividends

Utility Sample

| Company | $D_{1,1}$ | $D_{1,2}$ | $D_{1,3}$ | $D_{1,4}$ |
|---|---|---|---|---|
| AGL Resources | $0.289 | $0.289 | $0.289 | $0.289 |
| Energy East Corporation | 0.240 | 0.240 | 0.240 | 0.240 |
| Keyspan Corporation | 0.445 | 0.445 | 0.445 | 0.445 |
| NSTAR | 0.530 | 0.530 | 0.530 | 0.564 |
| Piedmont Natural Gas Company | 0.409 | 0.409 | 0.409 | 0.409 |
| Questar Corporation | 0.180 | 0.180 | 0.180 | 0.198 |

Water Sample

| Company | $D_{1,1}$ | $D_{1,2}$ | $D_{1,3}$ | $D_{1,4}$ |
|---|---|---|---|---|
| American States Water | $0.338 | $0.338 | $0.338 | $0.338 |
| Artesian Resources | 0.280 | 0.280 | 0.300 | 0.300 |
| California Water Service | 0.293 | 0.293 | 0.293 | 0.293 |
| Philadelphia Suburban | 0.133 | 0.133 | 0.133 | 0.140 |
| SJW Corporation | 0.653 | 0.679 | 0.679 | 0.679 |

Sources: Schedules 2.05 and 2.06

LAKE WILDWOOD UTILITIES CORPORATION

DCF Cost of Common Equity Estimates

Utility Sample

| Company | Estimate |
|---|---|
| AGL Resources | 12.77% |
| Energy East | 11.89 |
| Keyspan Corporation | 13.69 |
| NSTAR | 11.57 |
| Piedmont Natural Gas Company | 11.22 |
| Questar Corporation | 13.09 |
| Average | 12.37% |

Water Sample

| Company | Estimate |
|---|---|
| American States Water | 7.81% |
| Artesian Resources | 11.08 |
| California Water Service | 9.98 |
| Philadelphia Suburban | 8.06 |
| SJW Corporation | 7.25 |
| Average | 8.84% |

LAKE WILDWOOD UTILITY CORPORATION

Risk Premium Analysis

**Interest Rates as of January 11, 2002**

| U.S. Treasury Bills[1] | | U.S. Treasury Bonds[2] | |
|---|---|---|---|
| Discount Rate | Effective Yield | Bond Equivalent Yield | Effective Yield |
| 1.55% | 1.59% | 5.37% | 5.44% |

**Risk Premium Cost of Equity Estimates**

Utility Sample

| Risk-Free Rate Proxy | Risk-Free Rate | | Beta | | Risk Premium | | Cost of Common Equity |
|---|---|---|---|---|---|---|---|
| U.S. Treasury Bonds | 5.44% | + | 0.67 | × | (15.30% – 5.44%) | = | 12.05% |

Water Sample

| Risk-Free Rate Proxy | Risk-Free Rate | | Beta | | Risk Premium | | Cost of Common Equity |
|---|---|---|---|---|---|---|---|
| U.S. Treasury Bonds | 5.44% | + | 0.47 | × | (15.30% – 5.44%) | = | 10.08% |

[1] U.S. Treasury bill yields are quoted on a 360-day discount basis. The effective yield is determined as follows:

$$Effective\ yield = \left( 1 + \frac{discount\ rate \times \left( \frac{days\ to\ maturity}{360} \right)}{1 - discount\ rate \times \left( \frac{days\ to\ maturity}{360} \right)} \right)^{\left( \frac{365}{days\ to\ maturity} \right)} - 1$$

[2]The bond equivalent yield on U.S. Treasury bonds represents a nominal rather than an effective yield. The effective yield is calculated as follows:

$$Effective\ yield = [1 + (bond\ equivalent\ yield \div 2)]^2 - 1.$$

Sources: *Federal Reserve Statistical Release H.15*
*Standard & Poor's Utility Compustat*

LAKE WILDWOOD UTILITIES CORPORATION

Overall Cost of Capital

| Capital Component | Ratio | Cost | Weighted Cost |
|---|---|---|---|
| Long-Term Debt | 50.02% | 8.74% | 4.37% |
| Common Equity | 49.98 | 10.90 | 5.45 |
| Total | 100.00% | | 9.82% |